



Teaching Note TerraCycle, Inc.

The TerraCycle, Inc., case chronicles the efforts of Tom Szaky, Jon Beyer, and others in their quest to turn worm poop and used soda bottles into a viable business that forces us to reexamine the way in which we do business. The case also examines TerraCycle as a triple-bottom-line company that becomes more profitable as a result of (and not in spite of) its environmentally conscious and socially responsible business model.

TerraCycle, Inc., produces, markets, and sells plant fertilizers for consumer use that are produced and packaged entirely out of waste. Today, TerraCycle is facing its most challenging and exciting hurdles yet. In addition to its college-aged cofounders and its legion of college interns, TerraCycle currently employs a seasoned executive team of ten, who were brought on to manage and expand on the company's rapid growth. TerraCycle's operations have expanded to three locations: Trenton, New Jersey; Ithaca, New York; and Toronto, Canada. Its sales revenues continue to increase exponentially each year. Today, TerraCycle products are sold in Wal-Mart, Home Depot, Target, and other big-box stores. And this is just the beginning

Questions for students to consider while preparing the case: *TerraCycle faces a number of challenges looking forward. What should be Tom Szaky's primary concerns? If you were a venture capitalist, would you invest in the company?*

To prepare for the class:

- Read through case study
- Visit <http://www.terracycle.net/story.htm> to view clips of Tom Szaky for background
- Download additional, teacher-specific clips to be used in-class but not viewed by students prior to class from <http://eclips.cornell.edu/>

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- Browse www.terracycle.net for more information on the company, its management team, recent press, etc.
- Review suggested discussion topics and formulate questions and potential learning points that tailor TerraCycle to the specific course and/or students

Detailed Analysis

1. Does TerraCycle really deliver “triple-bottom-line” performance?

TerraCycle is in a position to shatter the presumed “trade-off” between social, environmental, and economic performance and deliver true “triple-bottom-line” results. Given its unique product and business model, TerraCycle is able to produce a functionally superior plant fertilizer at a lower cost. Indeed, organic vermicompost achieves better growth results than chemical fertilizers and does not “burn” plants if over-applied. The product is made entirely from “garbage” (organic waste) and is packaged in reused pop bottles, giving it a strong environmental profile. Furthermore, the company bases its operations in the inner city (Trenton, New Jersey) and employs low-income workers, giving it a strong social profile.

Through its unique business model, TerraCycle has achieved a low-cost position. It is able to secure its organic waste material in many cases at a *negative* cost (e.g. brewery waste hops that producers would otherwise have to pay to dispose of). The reuse of beverage bottles also lowers cost, since the company does not have to pay for expensive virgin packaging materials. Even the spray tops for the bottles are sourced as “seconds” from plastic injection molders. The creative use of college-age “interns” adds a unique element that has attracted media attention, reducing the need for expensive advertising. The executive team also earns low salaries, betting on the upside potential of the business. Finally, TerraCycle minimizes its real estate and facility costs by locating its headquarters in Trenton, New Jersey.

In short, TerraCycle has put together a business model and strategy that has the potential to deliver a highly functional, low-cost product with a strong social and environmental profile. It can provide a product that is simultaneously ecofriendly, functional, goof-proof, and cheap. This is truly the “Holy Grail” for sustainable enterprise.

2. Does big-box distribution make sense for TerraCycle?

Since its inception, TerraCycle has thrived on grassroots growth and support. Word-of-mouth sparked much of the company’s initial sales, press coverage, and investment. In this sense, the company has been positioned as a “niche” player—much like other so-called “green” product suppliers, such as Tom’s of Maine or Seventh Generation—with premium-price products for the environmentally conscious market.

Given TerraCycle’s ability to produce a superior product at a lower cost, it has the potential to take its product and business model to the “mainstream” (mass) market

rather than focusing only on the niche “green” market. The company’s entry into the big-box stores therefore holds the potential to dramatically increase penetration and sales.

Companies like Seventh Generation have shunned the big-box stores on ideological grounds, preferring to stick to niche distribution to the “green” market. TerraCycle, however, is keen to sell its “organic” product in the mass market. Indeed, in its early experiments with Wal-Mart in Canada, TerraCycle positioned its products alongside those of Miracle-Gro rather than relegating them to the “organic” aisle. By spending its advertising dollars on colorful and informative in-store displays, the company has the potential to shift the mass market toward the organic alternative. Furthermore, Wal-Mart is a much better customer compared to companies like Whole Foods, in which each store makes procurement decisions. Once Wal-Mart has committed, the product is on the shelf throughout its stores.

From Wal-Mart’s point of view, bringing TerraCycle on board as a vendor offers several benefits. At present, “key influencers” in the environmental and sustainability communities do not shop at Wal-Mart. As word of TerraCycle spreads, more and more environmentally oriented shoppers will be brought into their stores. Furthermore, TerraCycle’s knack for attracting media attention could bring valuable positive media attention to Wal-Mart (in contrast to the generally negative media attention that the big-box retailer now receives).

On balance, then, the big-box strategy offers the potential for a “win-win.” The big-box stores improve their reputations, and TerraCycle gains access to a growth platform of unprecedented potential, taking the company’s products to the mainstream market for the first time.

3. Is the business model scaleable?

As of January 1, 2006, TerraCycle had one manufacturing facility of roughly 10,000 square feet. It outsourced much of the worm-farming process to three facilities (in North Carolina, Alabama, and Washington State) in order to meet existing demand for its products. To preserve the living, beneficial microorganisms so crucial to the efficacy of TerraCycle’s products, every batch of solid worm poop must be brewed for days before being bottled. With any major big-box partnership, TerraCycle would be responsible for supplying thousands of stores across North America with its products, which would require a significant jump in production and greatly expanded access to used soda bottles. In spring 2006, TerraCycle won contracts to supply Wal-Mart, The Home Depot, and CVS stores throughout all of North America. This raises the following questions: Is TerraCycle ready to make the jump into the big-box market? Will it be able to scale production to meet dramatically increased demand? How can the company source bottles and other garbage needed for the product?

Access to Organic Waste. Since TerraCycle sources organic waste directly from large corporate entities (e.g. Anheuser-Busch), it does not anticipate problems gaining access to adequate quantities of high-quality organic waste for compost production. One pound

of organic waste is enough to make about six bottles of TerraCycle plant food. It is doubtful that Busch will eliminate or reduce its waste hops from brewing anytime soon.

Access to Bottles. While the Bottle Brigade strategy (\$0.05 donation for every bottle collected by schools, corporations, NGOs) described in the case has been very successful, both in sourcing bottles as well as in raising awareness about the product, the long-term solution is to source the bottles directly from “bottle bill states,” where soda bottles are already collected in large quantities for recycling. By taking the bottles themselves, TerraCycle is able to source at a reduced cost (about 2 cents per bottle). Ultimately, bottle bill states would supply upwards of 90 percent of the used bottles under the big-box strategy.

Scaling Production. At present, TerraCycle sources production of the worm poop to three factories. The key to product quality is ensuring that the anaerobic brewing process is done correctly. Therefore, one of the biggest challenges will be making certain that the actual production of compost is scaled up in a way that does not compromise product quality. Finding and qualifying additional production facilities will be one of the most difficult aspects of the scale up.

Human Resources. While the executive team that has been assembled should be more than adequate to manage such rapid expansion, the growth of the employee base could be a more difficult challenge. Szaky has used the college intern program with great success thus far. There is probably a limit, however, to how rapidly this program can be expanded or how big it can become before it begins to lose its cache, appeal, and effectiveness. At present, the intern program employs about 50 students. What will happen when hundreds of interns/employees are required to deal with the rapid expansion of the business?

New Product Development. At present, only a handful of “all-purpose” plant food products are available. However, TerraCycle is developing a wide range of specialized products optimized for particular types of plants (e.g. cactus, tomato, rose, orchid, violets, seed starter). The company’s goal is to have an entire shelf of products to compete directly with Miracle-Gro. Producing such specialized products requires access to particular types of organic waste and optimizing the composting process for a particular application. All this adds complexity to the production process and makes the production scale up that much more challenging.

4. If TerraCycle is successful, how does it protect itself from competitive response? Does it have a sustainable competitive advantage?

TerraCycle sales in 2005 were around a half-million dollars; in 2006, sales are projected to be \$1.5 million. With the big-box strategy in place, sales in 2007 could well exceed \$6 million. Within five years, TerraCycle could make more than \$50 million in sales. Nothing attracts competitive response more than rapid and visible success. Couldn’t Scotts and Miracle-Gro simply copy the TerraCycle strategy and use their deep pockets to put them under?

While TerraCycle does not hold any patents or intellectual property on its composting process or formulations, it guards some trade secrets about the anaerobic brewing process that extends the shelf life of its products beyond one year. Perhaps more importantly, TerraCycle holds a “fundamental” patent on the use of soda bottles for packaging. This would make it more difficult for Scotts to simply copy TerraCycle in the short term. Even if Scotts tried, however, it would have a difficult time achieving the same result. When Coke first learned of TerraCycle’s reuse of its bottles for packaging compost, the company was not pleased and sought to halt the use of its bottles for this purpose. TerraCycle’s environmental reputation, grassroots following, and ability to leverage the media deterred Coke from exercising its legal muscle to deny TerraCycle the use of its bottles. It would have resulted in much bad publicity—Goliath killing David, as it were. If Scotts tried to do the same thing, however, Coke and Pepsi would not hesitate to lower the legal boom on them.

Furthermore, TerraCycle’s low advertising cost and skilled use of inexpensive (but highly motivated) interns and the media gives it an advantage that Scotts and other large companies could not easily duplicate. In this sense, TerraCycle is really the “anti-Miracle-Gro.” Scotts would find it difficult to match TerraCycle’s success without starting an entirely new organization with different values, capabilities, and reputation. It is probably not in Scotts’ interest to do so, at this point in time. Should TerraCycle prove to be a highly successful business at some point down the line, however, a company like Scotts may seek to purchase TerraCycle. That would indeed be a sweet exit point for Tom and his merry band of interns!

5. What about expansion outside North America or diversification into food crops?

The first stage of the company’s new product development has been the development of a line of more specialized houseplant fertilizers, as mentioned above. Couldn’t it also move into the adjacent market for organic gardening? This possibility presents two big challenges:

1. Competition with a host of new players like Monsanto and other agricultural suppliers.
2. The need to dramatically increase the scale of its production operation to supply the quantities needed for agricultural applications; this would also require moving from retail to a commercial form of distribution.

It might be argued that agricultural applications are where the environmental benefits of organic fertilization would really be realized (versus just houseplants) but it would constitute a significant diversification move to achieve.

The question of expansion outside North America also is complicated. The strategy, thus far, has been to incubate the retail business model in Canada (where the scale, even in the big-box stores, is not overwhelming), then bring it to the United States on a

much larger scale. TerraCycle could experience a great deal of growth in the next several years just scaling up its business model and strategy. Entrepreneurs in developing countries also have expressed an interest in leveraging TerraCycle's business approach. Since this would entail moving from a retail model to a commercial (agricultural) model (most poor people don't grow decorative house plants), it would divert management attention away from scaling up the business model described thus far. In the future, however, the company could consider licensing aspects of its business model and process to partners in the developing world, where large quantities of organic waste are readily available and high-quality fertilizer is needed to replenish depleted soils. TerraCycle might even start this as a spin-off business, should sufficient interest develop and the right partners become available.

6. What are TerraCycle's sustainability challenges as it grows?

While the company enjoys a very favorable environmental profile, given that its core product is made entirely from garbage, are there other sustainability issues that it needs to attend to, particularly as it grows in the future?

While there are some minor waste issues associated with its production operation (e.g., bottle caps and spent labels), the biggest sustainability issue facing the company is getting a handle on the life-cycle impact of its product. Depending on where it sources bottles, relative to where it produces the compost, transportation impact may be a growing problem. Energy use (and costs) could mount as more and more raw material, compost, and bottles are shipped to their respective locations. Moving toward a "watershed" approach to bottle sourcing, production, and distribution might make sense in the long run. Regionalizing the sourcing of bottles, organic waste, and production for distribution within a defined area would minimize transportation cost, energy use, and greenhouse gas emissions associated with the business model.

Perhaps even more significantly, however, is the whole issue of what problems the product solves. While it is certainly nice that TerraCycle supplies organic indoor plant food that eliminates the need for chemical-based products, this is a relatively trivial problem from a societal point of view. Making the move into agricultural applications (organic agriculture in North America, improving soil conditions in developing countries) would arguably be much more significant in terms of societal value. A new business model (as was discussed above) would be required, however, to pursue these options.